

Work Order ID 101181

Thursday, May 02, 2013 1:20:11 PM

101181

Page 1

Item ID: D205-596-101

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Crosstube Fwd Extended

Start Date: 5/2/2013 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/22/2013 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date: 13-05-2

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D205-596

Rev B

100

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-594 bluefile & type labels per PPP D205-596-101 CHG002

DAS
06
1-89

MAY 28 2014

003

110

0.00

110

BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend as per Dwg D2889 using CNC bender program

JW 14-05-20

120

0.00

120

Crosstubes

Crosstubes

Memo

0.00

Crosstubes

Mark 31.53" for cutting from tangential line in the straight section from D2889 as per Dwg wall template. ***Identify off-cuts with batch number & part number and bring them to cnc lathe***

JW 14-05-20

101181

Page 2

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 5/2/2013 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 5/22/2013 Req'd Qty: 1.00 * 1 *

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

**Insp.
Stamp**

0.00

130

QC

Memo

0.00

Quality Control

0.00

140

Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Cut as per Dwg D205-596-101

2-Deburr & Inspect for surface damage.

Polish cut surface. Scribe part # and Batch # on one end of tube.

0.00

150

QC

Quality Control

~~OCT-3~~^{NAS}- Crosstube Dimensional Check

0.00

DAS

27

9-89

W/S/B

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Cust Item ID:

Required Date: 5/22/2013 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Crosstubes Chemical Conversion	0.00							
160									
HandFXtube	Memo	0.00							
Hand Finishing Crosstubes									
170	<i>QC7</i> QC5 Inspect part completeness to step on W/O	0.00							
170									
QC	Memo	0.00							
Quality Control									
180		0.00							
180									
SprayPaint									
Spray Painting	Memo	0.00							
	Prime inside and outside with Immron per QSI 005 4.2								
	Prime 128826 T6:20-6:40								
	Paint 128840 T10:40-11:20								

QB/PL *14-05-13*

1 *0* *0* *12*
14-5-14

14-05-16

1 *0* *0* *12*
14-5-17

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Cust Item ID:

Required Date: 5/22/2013 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC14- Inspect Spray Paint	0.00							
190									
QC	Memo	0.00							
Quality Control									
200	Crosstubes	0.00							
200									
Crosstubes	Memo	0.00							
Crosstubes	1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe 2- Apply magnebond 6398 as per dwg D205-596-101. Magnebond 6398 Batch: <u>128712</u>								
	Proseal 890								
	EXP: <u>10/14</u>								
210	QC5- Inspect part completeness to step on W/O	0.00							
210									
QC	Memo	0.00							
Quality Control									

DAS
16
9-89 14/05/20

1 0 0 14-5-18

DAS
16
9-89 14/05/20

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220		0.00							
220	Packaging				DAS 06 9-89				
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D205-596-101 Location: BK4								MAY 28 2014
230	QC21- Final Inspection - Work Order Release	0.00							
230									
QC	Memo	0.00							
Quality Control									

14/5/30

14-5-29

Picklist Print

Thursday, May 02, 2013 1:20:18 PM

Page 1

Work Order ID: 101181

101181

Parent Item: D205-596-101

D205-596-101

Parent Item Name: Crosstube Fwd Extended

Start Date: 5/2/2013

Required Date: 5/22/2013

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev G Removed Bending 05-10-25 JLM
 IPP Rev:H ECN 1075 08-01-10 DD
 IPP Rev I 08.04.28 Added bending & mat'l EC verified by: DD
 IPP Rev:J 08-08-19 remove QC4 DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D6005-180		Manufactured	No			110	Each	14.0000	1	1			
D6005-180										**			
Crosstube Material													

Location	Loc Qty	Loc Code
HALL	14	
69797	14	
D2893-1	200	Each
Manufactured	No	
D2893-1		
2.75 Support		
**		

Location	Loc Qty	Loc Code
FG	2	
87289	2	
LG052	31	
72865	2	
87289	1	
89624	1	
92823	3	
96348	4	
96489	20	

① JW 14-05-18
 ② AB 14-5-18

Picklist Print

Thursday, May 02, 2013 1:20:18 PM

Work Order ID: 101181

101181

Parent Item: D205-596-101

D205-596-101

Parent Item Name: Crosstube Fwd Extended

Start Date: 5/2/2013

Required Date: 5/22/2013

Start Qty: 1.00

Required Qty: 1.00

MS21920-25

Purchased

No

200

Each

53.0000

4

4

MS21920-25

Clamp(per MIL-DTL-8783C)

**

AR 14-5-18

Location

Loc Qty

Loc Code

FG

2

120920

2

LG050

27

116264

2

117998

4

118142

4

119339

2

119746

2

120475

3

120920

7

123930

3

LG051

24

122838

3

124261

21

D3595-063-450

Manufactured

No

200

Each

48.0000

4

4

D3595-063-450

RUBBER CUSHION

**

AR 14-5-18

Location

Loc Qty

Loc Code

FG

15

88422

5

94274

10

LG051

33

98409

1

98995

12

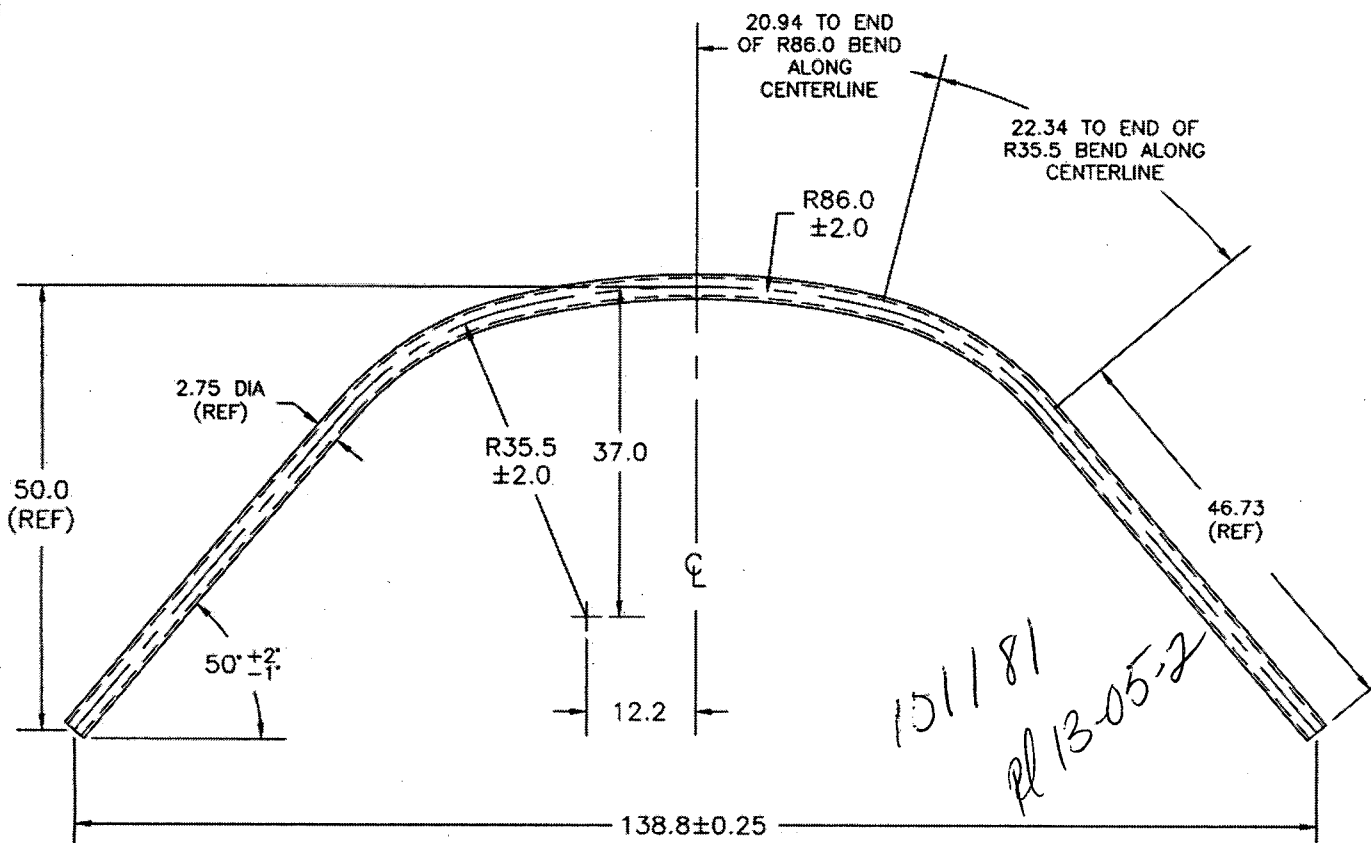
99357

20



RELEASED
02.10.28

DESIGN	DRAWN BY	DART AEROSPACE LTD	
#	CP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. B
#	#	D2889	SHEET 1 OF 1
DATE		TITLE	SCALE
02.10.18		FWD CROSSTUBE	1:20
A	99.05.21	NEW ISSUE	
B	02.10.18	ADD TANGENT LENGTHS; CHANGE NOTES	

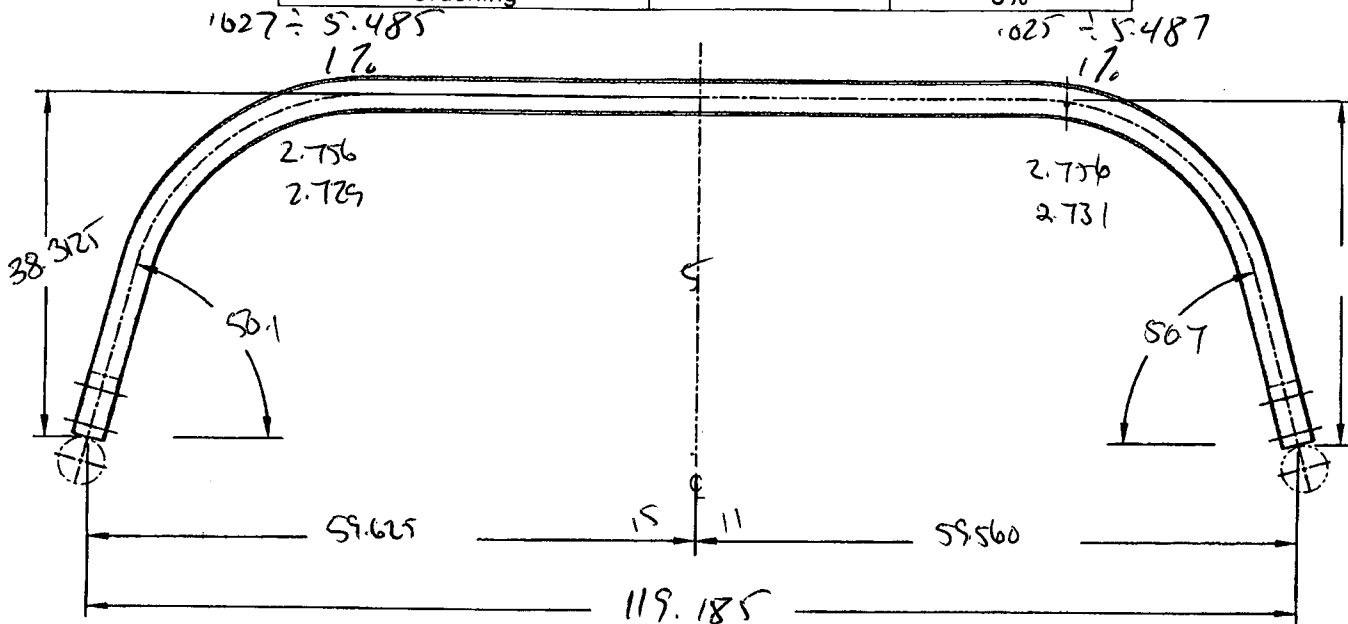


NOTES

- 1) MATERIAL: MANUFACTURE FROM D6005-180 (Ø2.75 OD x 0.375 WALL)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) PART IS SYMMETRIC ABOUT CENTERLINE
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) BEND PROGRESSIVELY WITH MINIMUM OF 3 PASSES
- 6) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High-High Fwd		Part Number:	D205-596-101
Inspection Dwg: D205-596-101 Rev: B			Page 1 of 1

Required Dimension	Min	Max
Height	38.2	38.4
1/2 Span	59.5	59.7
Angle	49	52
Total Span	119.0	119.4
Bending Passes	3	--
Crushing	--	6%



	Side A	MIN	MAX	Side B
Bending Passes	15	5	11	
Crushing	17°		17°	
Comments				
SIDE A: 17° crush @ 15 Passes				
SIDE B: 17° crush @ 11 Passes				

QC15 Inspection	DAS
Date	16
	9-89 14/5/05

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	08.04.21	Dwg Rev updated	KJ/JM	
C	12.04.16	Added bending, crushing dimensions	KJ	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
--	--	---	--

PARTS LIST:

Qty	Part Number	Description
X	D205-596-101	CROSSTUBE ASSEMBLY, HI-HI FWD
1	D6005-180	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
4	MS21920-25	CLAMP
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURE FROM D6005-180
FINISHED LENGTH = 149.60 ± 0.02
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH
VIBRATING STYLUS
- 7) WEIGHT: 44 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE
- 9) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO
BENDING IS 6% BASED ON O.D.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT
WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION
AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE D2893-1
SUPPORT ON THE TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE
CROSSTUBE SUPPORT.
**NOTE: IT IS ACCEPTABLE TO SUBSTITUTE MS21920-25 CLAMPS WITH LONGER (MS21920-26) OR
SHORTER (MS21920-24) CLAMPS TO ACCOMODATE VARYING DIAMETERS. ENSURE THERE IS A
MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.**
- 13) TORQUE CLAMPS 80 TO 100 IN-LB

DEO ATTACHED**RELEASED**
R 60-01-16 WPD

B	SUPPORT NOW MAGNOBONDED; REMOVE D2856-600-851 ABRASION STRIP; UPDATED NOTES; ADDED D3595-063-450 CUSHION; MS21920-25 WAS MS21920-24	MB	07.12.03
A	NEW ISSUE	DS	02.05.27
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>[Signature]</i>	DART AEROSPACE LTD	
DRAWN	<i>[Signature]</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D205-596-101	SHEET 1 OF 2
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	CROSSTUBE ASSEMBLY, HI-HI FWD	NTS
DATE	07.12.03	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

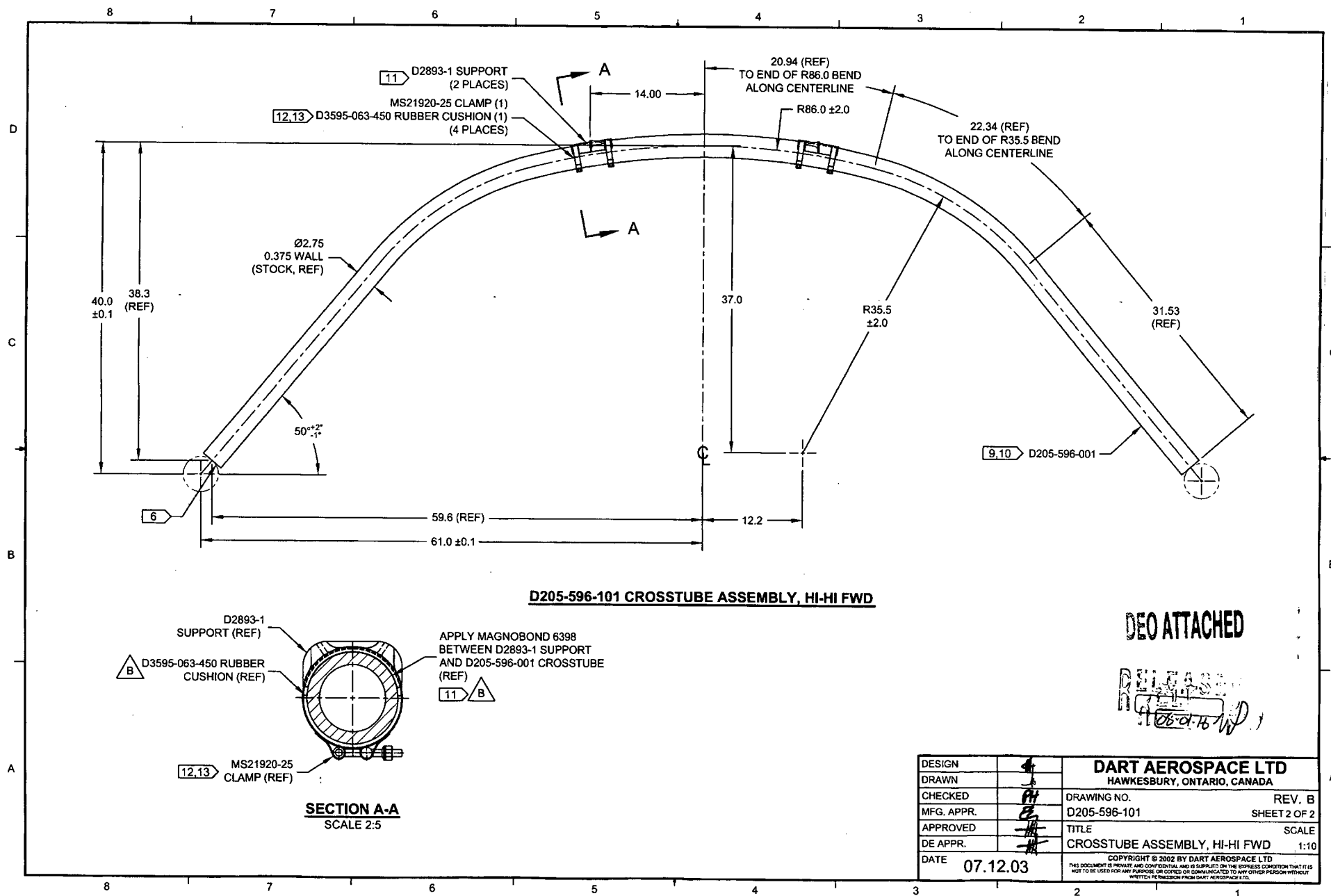
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:33%;"> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </td> <td style="width:33%;"> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </td> <td style="width:33%;"> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </td> <td style="width:33%;"> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </td> </tr> </table>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>
Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>			

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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DEO ATTACHED

RELEASE
106-015

DESIGN	4	DART AEROSPACE LTD	
DRAWN	5	HAWKESBURY, ONTARIO, CANADA	
CHECKED	PH	DRAWING NO.	REV. B
MFG. APPR.	2	D205-596-101	SHEET 2 OF 2
APPROVED	11	TITLE	SCALE
DE APPR.	11	CROSSTUBE ASSEMBLY, HI-HI FWD	1:10
DATE	07.12.03	COPYRIGHT © 2002 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Equip/Tooling									
Handling/Pre									
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Process									
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Training									
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FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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DRAWING NO. D205-596-101	TITLE CROSSTUBE ASS'Y, HI-HI FWD	REV. B	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D205-596-101-B-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>q</i>	CHECKED <i>A.P.</i>	MFG. APPR. <i>M</i>	APPROVED <i>MP</i>		DE APPR. <i>MP</i>		
DATE 13.11.11	DATE 13.11.19	DATE 13.11.19	DATE 13/11/21		DATE 13/11/21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Qty	Part Number	Description
A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
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NOTE 11 & 13, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 11) TO INSTALL D2893-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB.

RELEASED
2013-11-26
MP

DQA: _____ Date: _____



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D2889 - Folio
Rollers 3 x 2.75
Lines -

16.8125 from centerline

43.28 from centerline

Side bends buggy - SA 3"+2 shims

SB 3" (new buggy) /adjust supporting rollers as required.

For D205-596-105 pre-cut extrusion to 145"

For D205-596-101 pre-cut extrusion to 158"

MIDDLE

Start program 2889middle @ 43.28 line w/tube closer to the wall. Approach is 2522 on Y&W.

For bending middles, use supporting rollers on each side of the machine. Bring to almost touch tube, leave the thickness of a hair to prevent damage on tube as it's bending. Middle bend must be at reference line on wall template to be good.

SIDES

Run programs 10-15 With longest part of tube on small table, starting @ line 16.8125. Approach is 3280 on W on all programs. Program 10-15 will start @ 2250 approach on Y. Run program 16-19 from the same line. CHECK. Use programs 20-26 to finish tube, use 2350 on Y and 3280 for W for Approach.

Happy Bending

09/03/09

bent two tubes as per folio and both tubes turned out very nice.

09/03/30

bent one tube as per folio and tube turned out very nice.

09/04/02

bent 1 tube middle went great..... SA took 19 x 2 + 20 x 2 to get 54.750

SB took 19 x 2 to get 54.780
at a height of 32.4

prog 19 line 10 is 3300 power

prog 20 on line 10 I added 25 points to give 3325, and 20a I added 15 points to the same line to give 3340.

Work Order ID 101181

Thursday, May 02, 2013 1:20:11 PM

101181

Page 1

Item ID: D205-596-101
Revision ID:
Item Name: Crosstube Fwd Extended

Start Date: 5/2/2013 Start Qty: 1.00 *1*
Required Date: 5/22/2013 Req'd Qty: 1.00 *1*

Reference:

Approvals: Process Plan: *[Signature]* Date: *13-05-27* Tooling: Date:
QC: Date: SPC (Y/N): Date:

N9000040100

Setup Start ***NS1***
Stop ***NS2***

Cust Item ID:
Customer:

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw.Nbr	Revision Nbr								
D205-596	Rev B								
100		0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Document Control	Photocopy D205-594 bluefile & type labels per PPP D205-596-101 CH0002								
									<i>MLJ 14-05-21</i>
110		0.00							
110	BENDING MACHINE - CROSSTUBES								
C Bend 2	Memo	0.00							
CNC Alpha 160 Bender	Bend as per Dwg D2889 using CNC bender program								<i>JW 14-05-20</i>
120		0.00							
120	Crosstubes								
Crosstubes	Memo	0.00							
Crosstubes	Mark 31.53" for cutting from tangential line in the straight section from D2889 as per Dwg wall template. ***Identify off-cuts with batch number & part number and bring them to cnc-lathe***								<i>JW 14-05-20</i>

*CHG-003
See attachment*

Change Record

PAGE 1 OF 1

Part Number: D205-596-101/-103/-105/-107

Description: CROSSTUBE ASSEMBLIES

[illegible]

DQA: _____ Date: _____



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